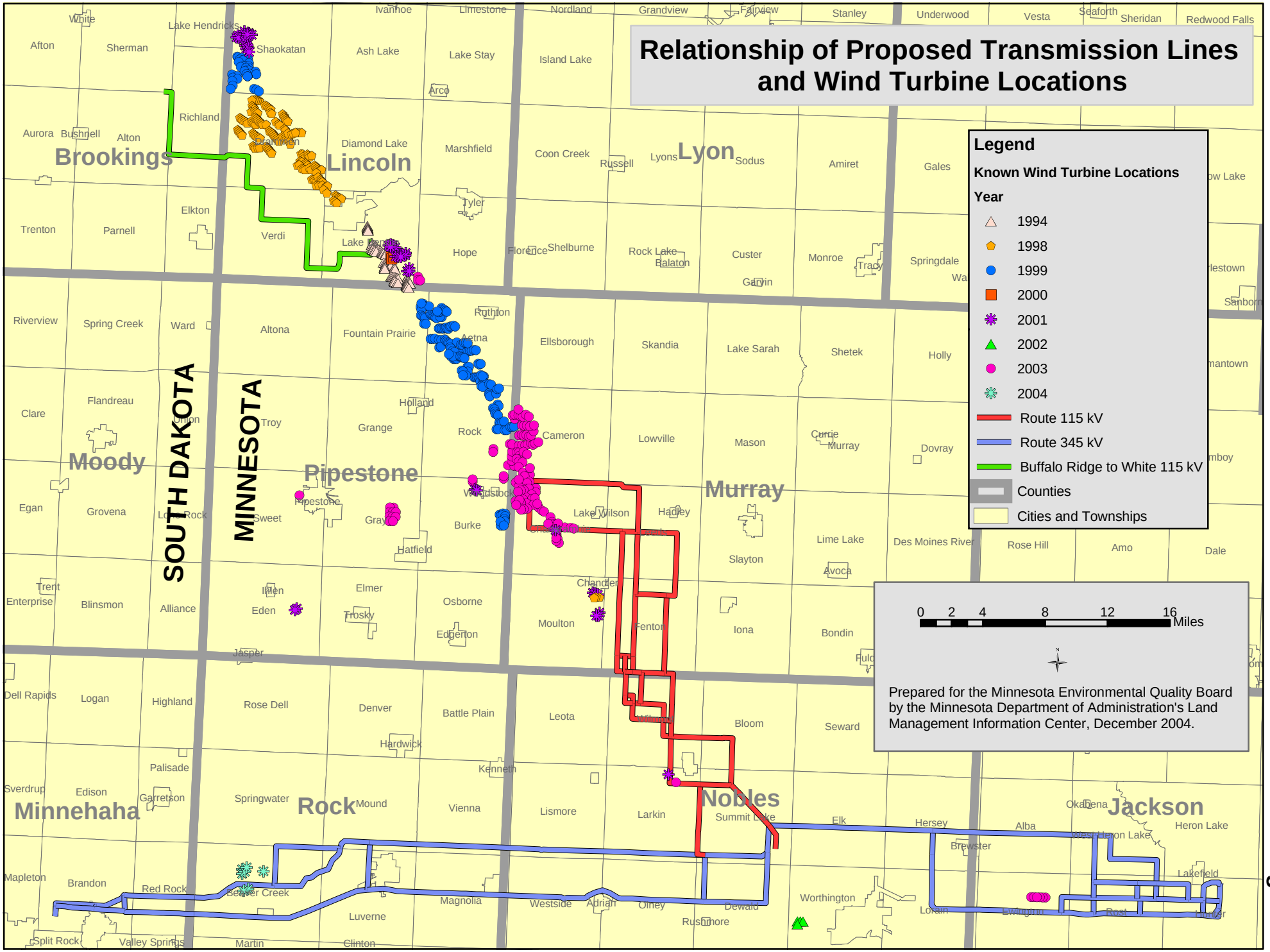

Relationship of Proposed Transmission Lines and Wind Turbine Locations
Legend
Known Wind Turbine Locations
Year
1994
1998
1999
2000
2001
2002
2003
2004
Route 115 kV
Route 345 kV
Buffalo Ridge to White 115 kV
Counties
Cities and Townships
0 2 4 8 12 16 Miles
Prepared for the Minnesota Environmental Quality Board by the Minnesota Department of Administration's Land Management Information Center, December 2004.
SOUTH DAKOTA
MINNESOTA
Brookings
Lincoln
Lyon
Moody
Pipestone
Murray
Minnehaha
Rock
Nobles
Jackson

Figure A

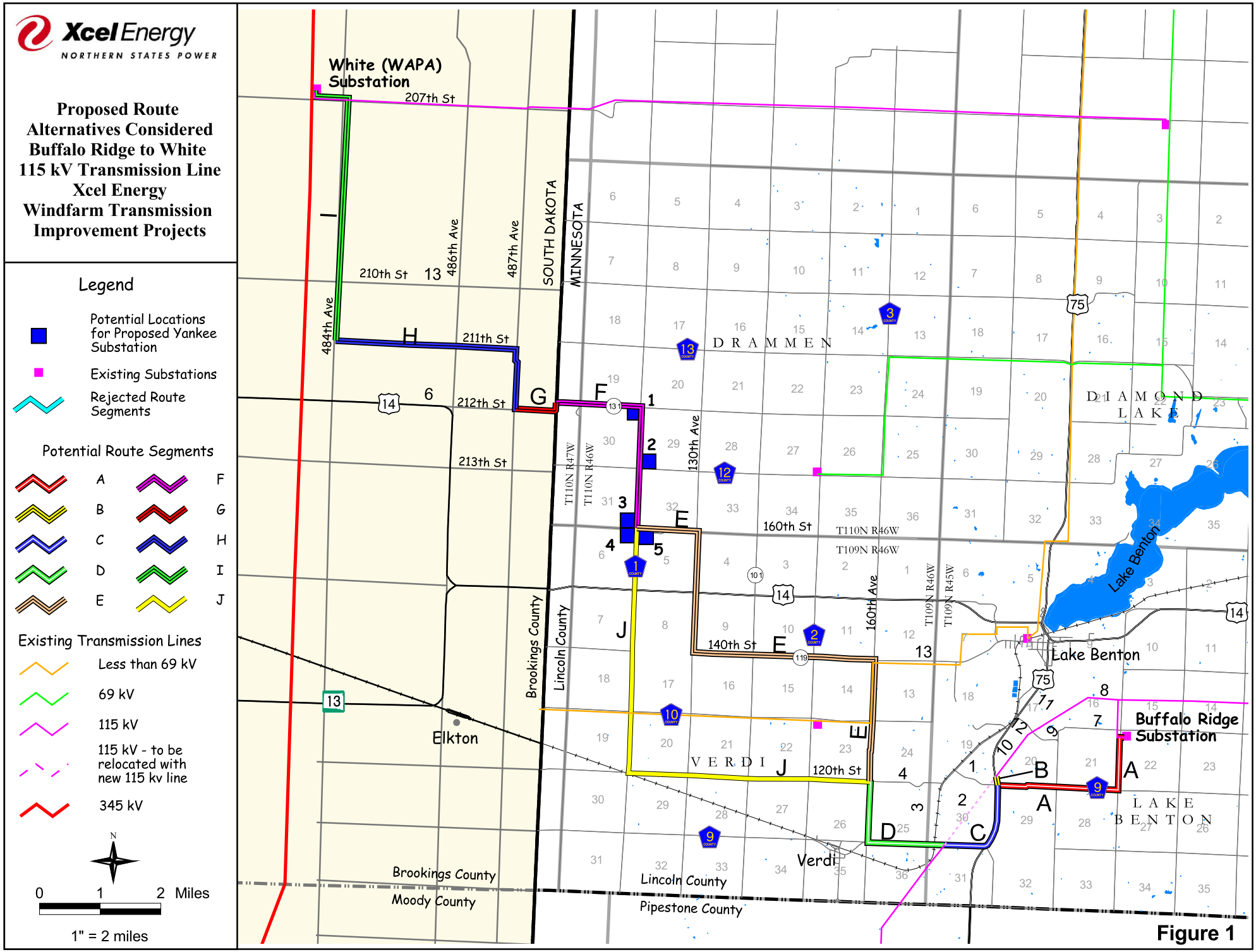
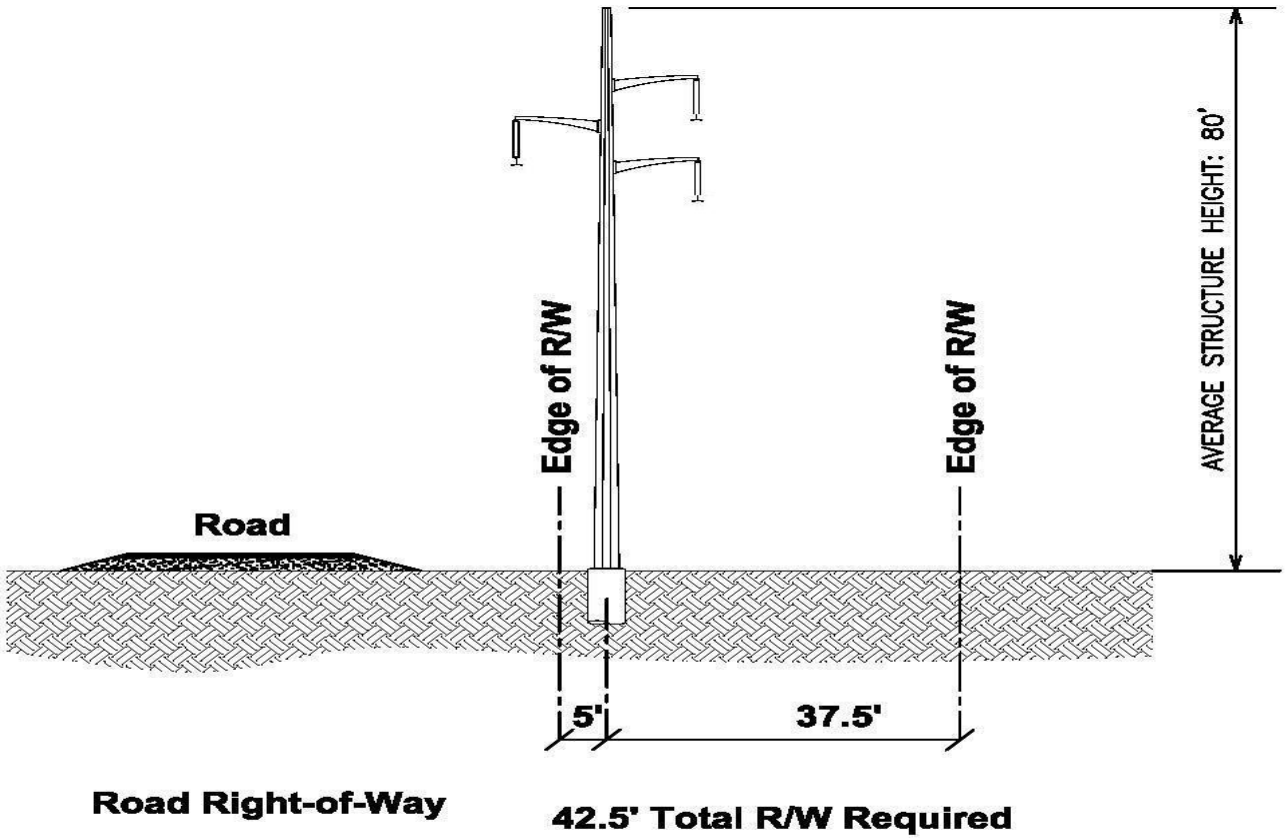

Xcel Energy
NORTHERN STATES POWER
Proposed Route
Alternatives Considered
Buffalo Ridge to White
115 kV Transmission Line
Xcel Energy
Windfarm Transmission
Improvement Projects
Legend
Potential Locations for Proposed Yankee Substation
Existing Substations
Rejected Route Segments
Potential Route Segments
A
B
C
D
E
F
G
H
I
J
Existing Transmission Lines
Less than 69 kV
69 kV
115 kV
115 kV - to be relocated with new 115 kv line
345 kV
N
0 1 2 Miles
1" = 2 miles
White (WAPA) Substation
207th St
210th St
211th St
212th St
213th St
484th Ave
486th Ave
487th Ave
SOUTH DAKOTA
MINNESOTA
130th Ave
160th St
140th St
120th St
160th Ave
T110N R47W
T110N R46W
T110N R46W
T109N R46W
T109N R45W
DRAMMEN
DIAMOND LAKE
LAKE BENTON
Lake Benton
Lake Benton
Buffalo Ridge Substation
Elkton
VERDI
Verdi
Brookings County
Lincoln County
Brookings County
Moody County
Lincoln County
Pipestone County
Figure 1

Figure 2
ROW When Paralleling Existing Road



Xcel Energy 115kV Davit Arm Structure
Right-of-Way Requirements
Adjacent to a Road
400' Average Span

Figure 3
ROW When Route is Cross-County

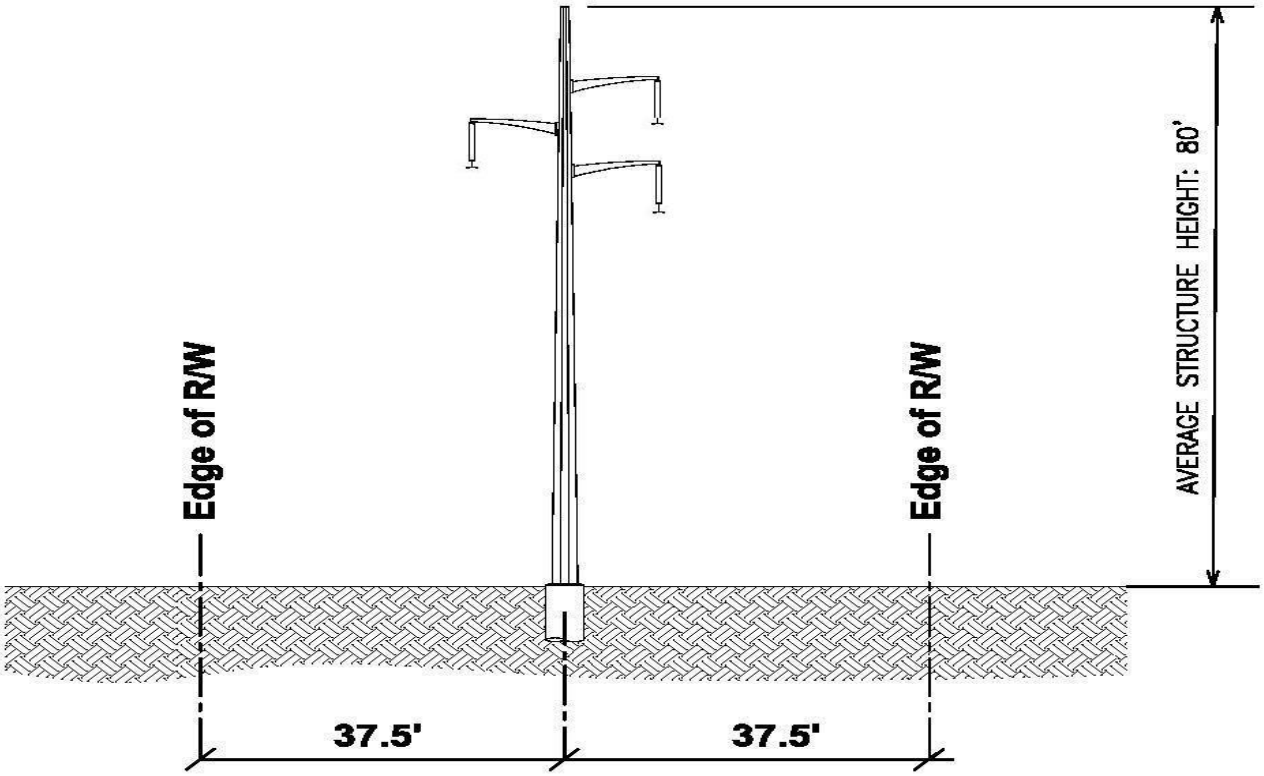
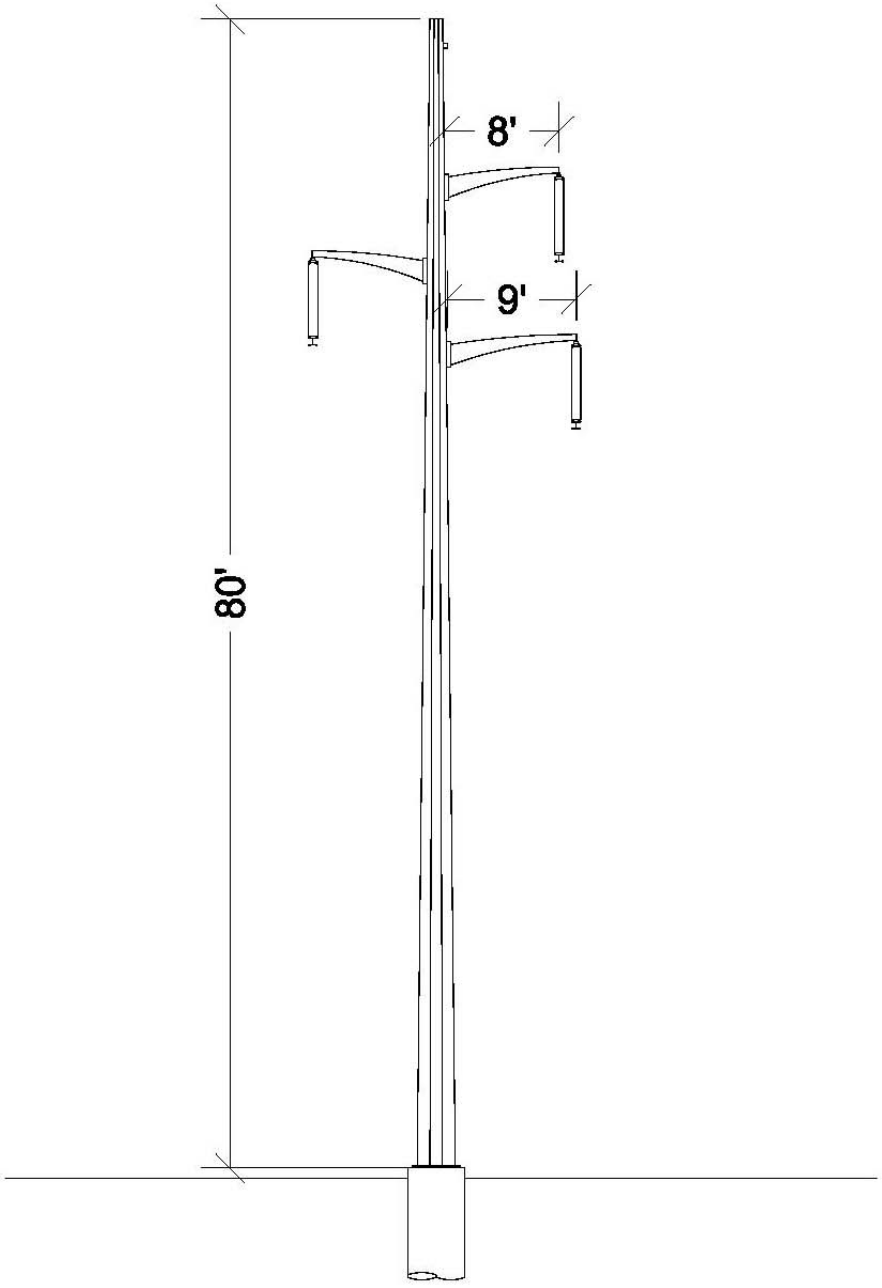


Figure 4
115 kV Single Circuit Structure



Single Circuit 115kV

Figure 5
115 kV/115 kV Double Circuit Structure

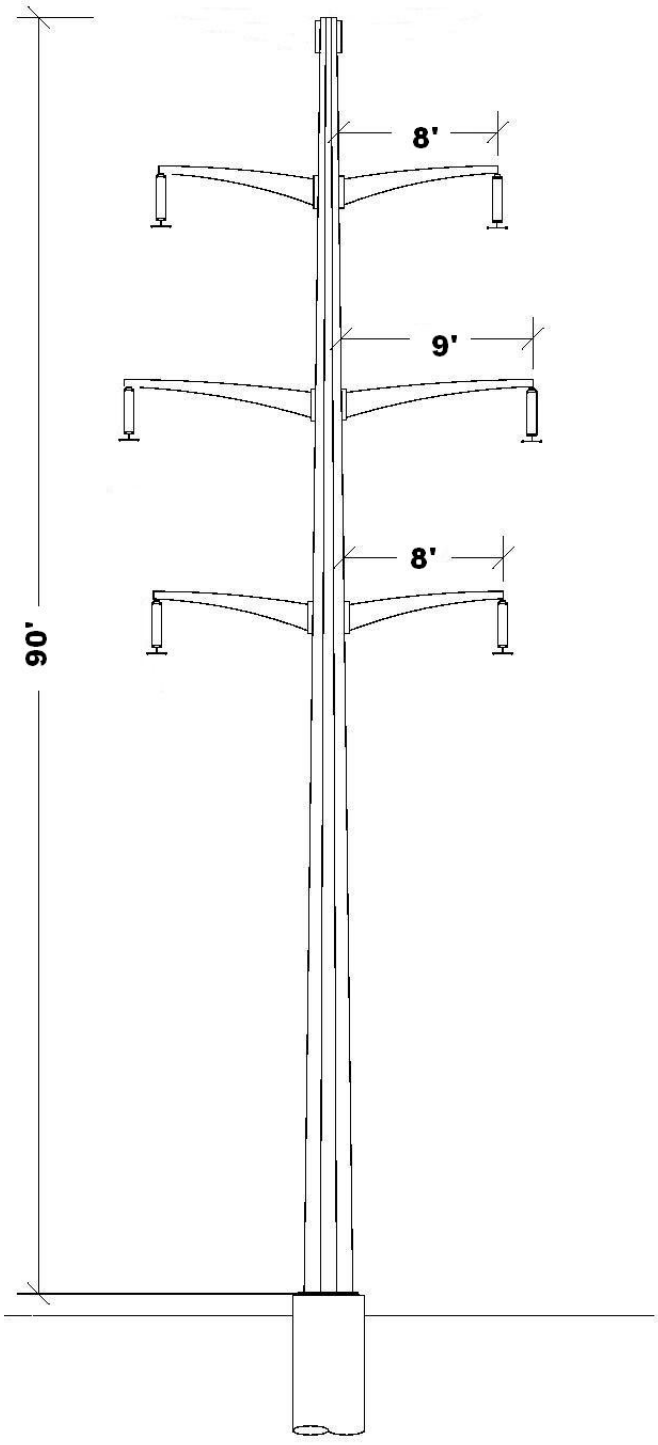
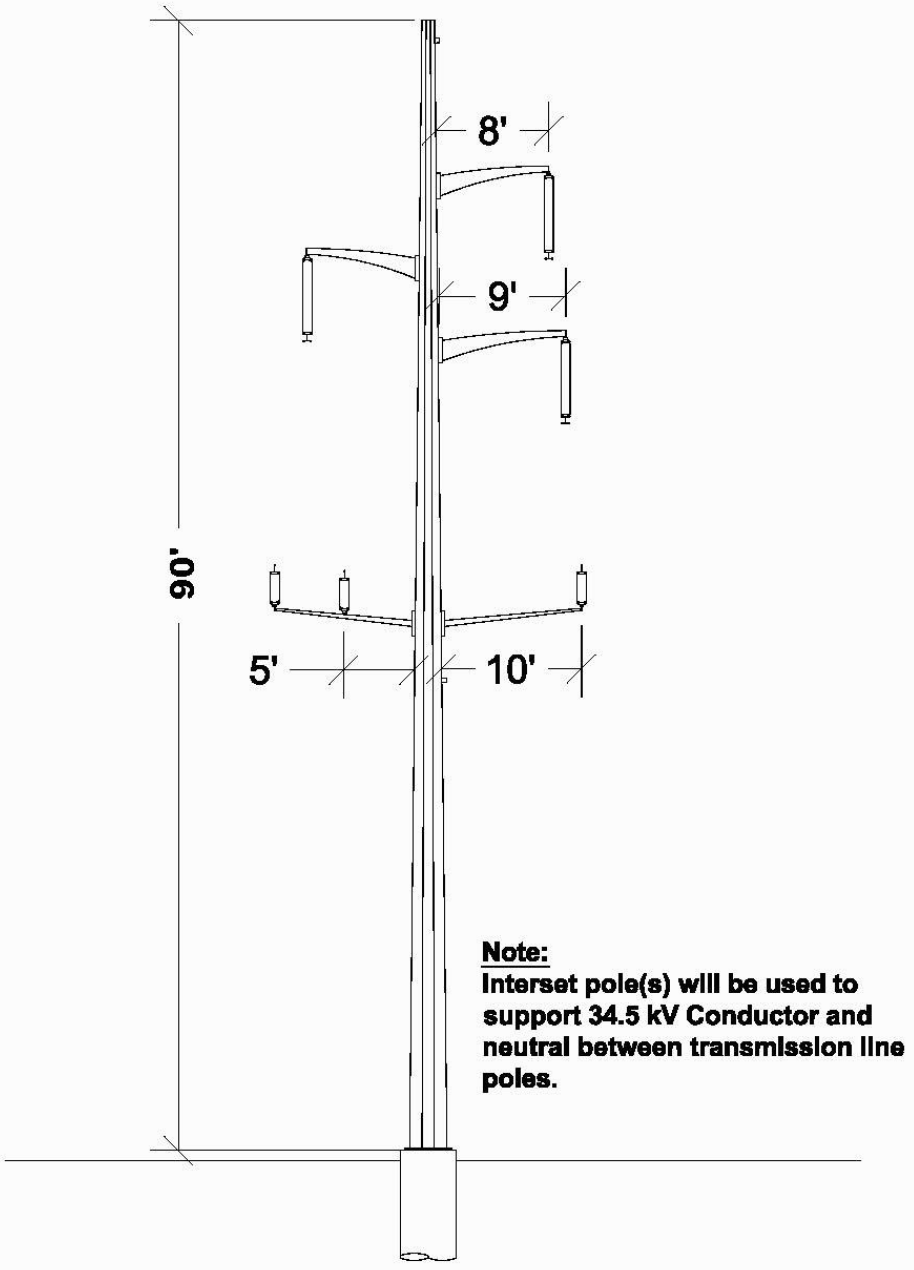


Figure 6
Single Circuit 115 kV with 34.5 kV Underbuild



Single Circuit 115kV with 34.5kV Underbuild Provision

Figure 7
Single Circuit 115 kV with Double Circuit 34.5 kV Underbuild

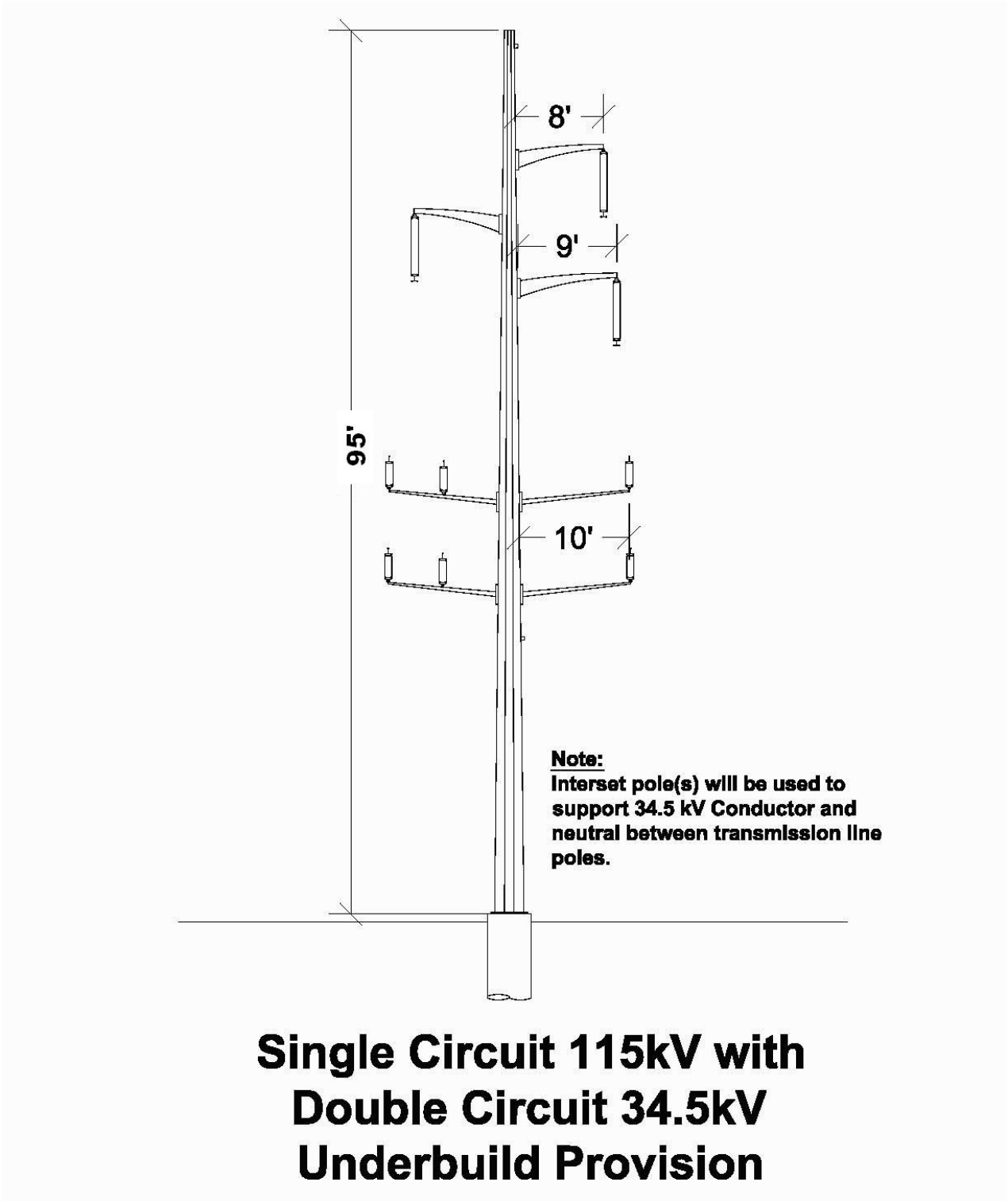
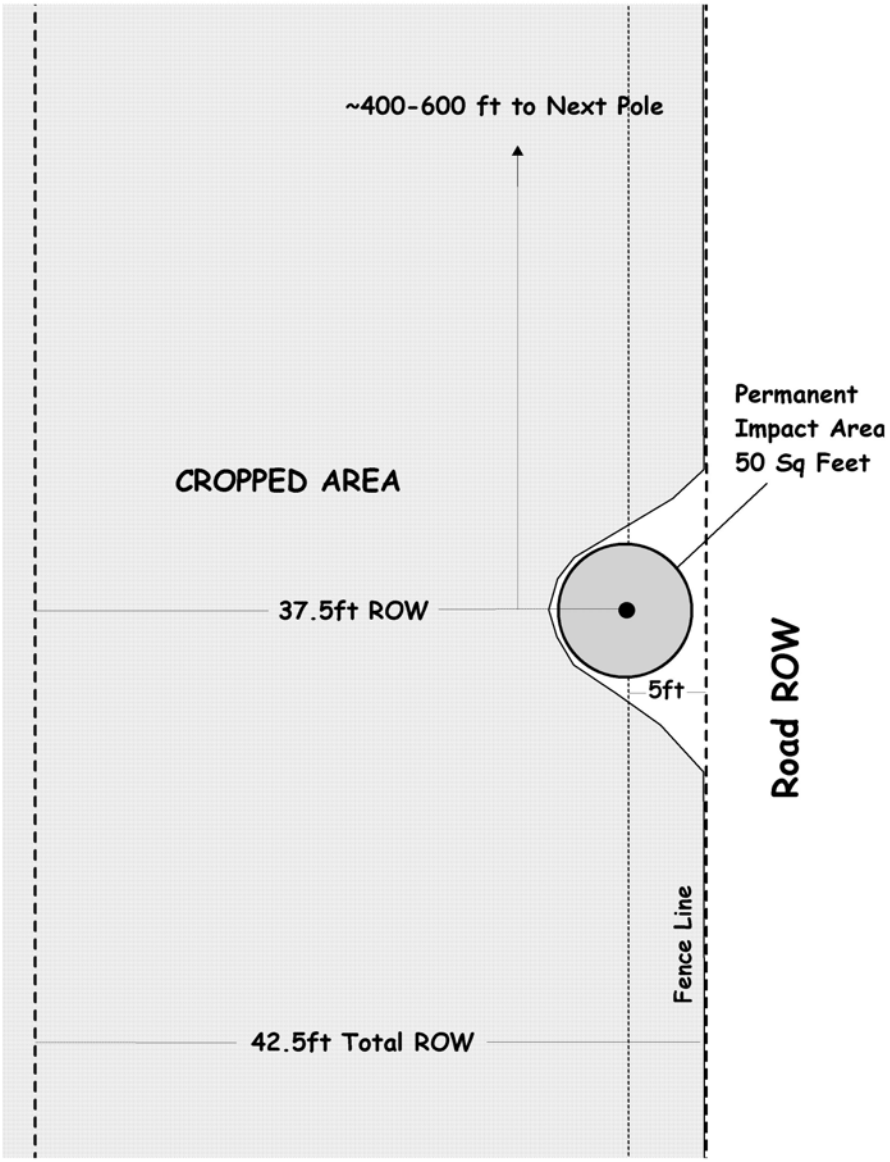


Figure 8
Permanent Impact Area



STATE OF MINNESOTA
ENVIRONMENTAL QUALITY BOARD

In the Matter of Xcel Energy's Application for a Route Permit for the Buffalo-White High Voltage Transmission Line, the new Yankee Substation, and Associated Facilities in Lincoln County, Minnesota

ENVIRONMENTAL ASSESSMENT SCOPING DECISION
EQB Docket # 04-84-TR-XCEL
November 1, 2004

The above-captioned matter has come before the Chair of the Minnesota Environmental Quality Board (EQB) for a decision on the scope of the Environmental Assessment (EA) to be prepared on the Buffalo-White 115 kV transmission Line and the Yankee Substation project. The EQB held a public meeting on September 22, 2004, to discuss the project with the public and to identify issues to be included in the scope of the EA to be prepared for this project. The public was given until October 25, 2004, to submit written comments regarding the scope of the EA and to propose alternative routes or route segments and substation sites. Having reviewed the record in this matter and consulted with EQB staff, I hereby make the following Scoping Decision regarding:

MATTERS TO BE ADDRESSED

The Environmental Assessment on the proposed Buffalo-White High Voltage Transmission Line and the Yankee Substation project will address the following matters:

1.0 INTRODUCTION (A brief overview of the EQB permitting process and identification of what is discussed in the document).

- 1.1 Description
- 1.1 Purpose and Need
- 1.2 Sources of Information

2.0 REGULATORY FRAMEWORK

- 2.1 Certificate of Need Requirement
- 2.2 Route Permit Requirement
- 2.3 Environmental Assessment
- 2.4 Public Hearing
- 2.5 South Dakota Permitting Requirements

2.6 Applicable Codes
2.7 List of Permits Required
2.8 Issues outside EQB Authority

3.0 DESCRIPTION OF THE PROPOSED PROJECT (Includes Engineering Design, Construction and Right-of-Way Acquisition and Other Specific Features and Attributes of the Buffalo-White High Voltage Transmission line and Associated Facilities and the New Yankee Substation will be Described.)

3.1 Transmission Structure Design
3.2 Conductor and Shield Wire
3.3 Foundations
3.4 Design Options to Accommodate Future Expansion
3.5 Right-of-Way Requirements
3.6 Substation Design (Includes Yankee and existing Buffalo Ridge Substations
3.7 Design Options to Accommodate Future Expansion
3.8 Project Cost Estimates

4.0 ROUTE SEGMENTS AND SUBSTATION SITES

Governmental agencies (local and state) and the general public did not propose any new routes, route segments or substation sites during the scoping period.

The following route and substation alternatives will be evaluated in the EA:

1. The route proposed by Xcel Energy shown as segments A, B, C, D, E, and F) in Figure 1. Route segments G and H are located in South Dakota and not subject to EQB review. However, they will be discussed in the EA.

2. The Verdi Township route segment alternative running west from the intersection of 160th Avenue and 120th Street to County Highway 1, then north to the point where it intersects Xcel Energy's route between sections 5 and 6 in Verdi Township and sections 31 and 32 in Drammen Township.

3. Substation Sites. The EA will also evaluate the five proposed Yankee Substation sites located in sections 31, 29 and 30 in Drammen Township and in sections 5 and 6 in Verdi Township, as shown in Figure 1.

5.0 ANALYSIS OF POTENTIAL IMPACTS OF THE PROJECT (Includes all transmission line route segments and proposed five substation sites.) This section will describe the potential human and environmental effects related to the proposed transmission line and proposed Yankee substation. Topics addressed will include:

5.1 Existing and Proposed Land Uses
5.2 Transportation

5.3 Noise
5.4 Human Settlement
5.5 Visual
5.6 Property Values
5.7 Socioeconomics
5.8 Economics
5.9 Archaeological and Historical Resources
5.10 Geology and Soils
5.11 Health and Safety
5.12 Water Quality
- 5.12.1 Water Resources
- 5.12.2 Surface Water
- 5.12.3 Groundwater
- 5.12.4 Wetlands

5.13 Biological Resources
- 5.13.1 Flora
- 5.13.2 Fauna
- 5.15.3 Rare and Unique Natural Resources

5.16 Air Quality

5.17 Electric and Magnetic Fields
- 5.17.1 Interagency White Paper on EMF
- 5.17.2 Radio and Television Interference
- 5.17.3 Stray Voltage

6. ANALYSIS OF MITIGATIVE MEASURES (Any specific measures for mitigating potential environmental or human impacts of the proposed project will be described).

7. IDENTIFICATION OF PERMITS REQUIRED (The EA will include a list of permits that will be required by Xcel Energy to construct the proposed project).

6.0 ISSUES OUTSIDE THE SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The EQB will not, as part of this environmental review, consider whether a different size or different type of transmission line should be built instead or consider other system alternatives or other voltages. Nor will the EQB consider the no-build option.

The EQB will not evaluate any route segments through the Hole-in-the Mountain Prairie owned by the Nature Conservancy or the Hole-in-the Mountain Wildlife Management Areas managed by the Minnesota Department of Natural Resources because of their unique characteristics and objections expressed by the Nature Conservancy and DNR.

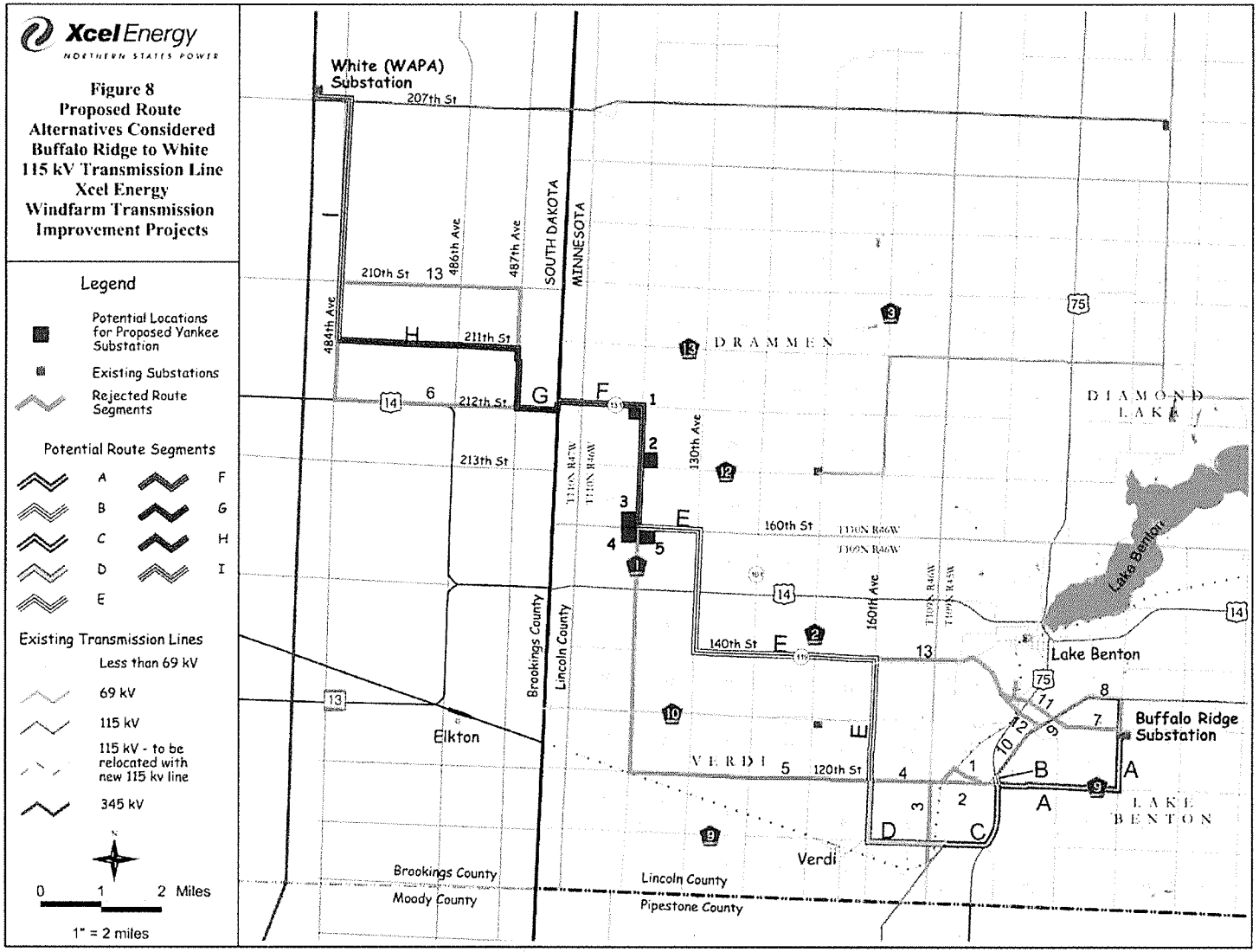
7.0 SCHEDULE FOR COMPLETION OF EA

The Environmental Assessment on the HVTL will be completed by December 20, 2004. Upon completion of the EA, the EQB will notify those persons who have asked to be notified of the completion. In addition, the EQB will publish notice of the availability of the EA in the EQB Monitor (the bi-weekly newsletter of the agency). The EA will be made available for review and will be posted on the EQB webpage. The EQB will hold a public hearing in January 2005 in Lincoln County to provide an opportunity for the public to ask questions and to comment on the EA and route permit application.

Signed this 1st day of November, 2004

STATE OF MINNESOTA
ENVIRONMENTAL QUALITY BOARD

Robert A. Schroeder, Chair


Xcel Energy
NORTHERN STATES POWER
Figure 8
Proposed Route
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Buffalo Ridge to White
115 kV Transmission Line
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Potential Route Segments
A
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D
E
F
G
H
I
Existing Transmission Lines
Less than 69 kV
69 kV
115 kV
115 kV - to be relocated with new 115 kv line
345 kV
0 1 2 Miles
1" = 2 miles
White (WAPA) Substation
207th St
210th St
211th St
212th St
213th St
160th St
140th St
120th St
484th Ave
486th Ave
487th Ave
130th Ave
160th Ave
SOUTH DAKOTA
MINNESOTA
Brookings County
Lincoln County
Moody County
Pipestone County
DRAMMEN
DIAMOND LAKE
Lake Benton
Elkton
VERDI
Verdi
Buffalo Ridge Substation
LAKE BENTON

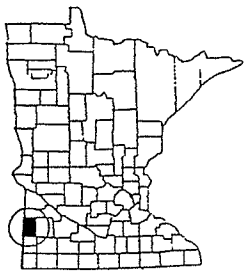
LINCOLN COUNTY HIGHWAY DEPARTMENT

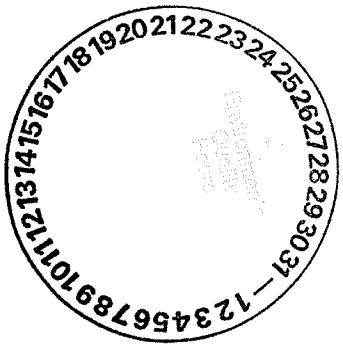
Post Office Box 97
Ivanhoe, Minnesota 56142

Ronald E. Gregg, P.E.

Engineer's Office 507-694-1464
Engineer's Office Fax 507-694-1101
Maintenance Shop 507-694-1730

E-Mail Highway@co.lincoln.mn.us





October 25, 2004

Larry Hartman
Minnesota Environmental Quality Board
658 Cedar St. Room 300
St. Paul, MN 55155

RE: Comment on the Buffalo Ridge to White substation transmission line.

Dear Mr. Hartman:

I was present at the public hearing on September 22, 2004 at the Midwest Center for Wind Energy for the proposed 115KV-transmission line. The proposed route for the transmission line from the Buffalo Ridge Substation and the White Substation following Lincoln County State Aid Highway No. 9.
As Lincoln County Highway Engineer I have concerns that the transmission line is designed and built to allow for future roadway improvements.

Sincerely,

Ronald Gregg PE
Lincoln County Engineer

STATE OF MINNESOTA
Office Memorandum
DNR – Ecological Services
Southern Region – New Ulm

DATE: 10/25/2004

TO: Larry Hartman, EQB

FROM: Shannon Fisher
Regional Environmental Assessment Ecologist

PHONE: (507) 359-6073

SUBJECT: Xcel Transmission Line from Buffalo Ridge to White, SD

Please find below a summary of our conversation last week regarding the transmission line noted above. The information provided below highlights some of the discussions DNR has had with The Nature Conservancy (TNC) and Xcel staff.

DNR staff, including John Schladweiler (Regional Wildlife), Bob Meyer (Area Wildlife), and myself met several months ago with Xcel Energy representative Pam Rasmussen and TNC staffer Pete Bauman. Ms. Rasmussen arranged this meeting to discuss a transmission line need from the Buffalo Ridge area to White, South Dakota. As a result of this discussion, DNR and TNC had narrowed our preferred alternatives down to two:

1) An alignment in association with the minimum maintenance township road (I don't know the road number) that divides DNR and TNC land along the north side of the DNR owned Hole-in-the-Mountain WMA, and
2) Along TH 75 to the south and then along CSAH 9 to the west – a route that would take the line along the south edge of the Hole-in-the-Mountain WMA. Please note that CSAH 9, as we see it on the maps, has been redesignated as a Township Road, so we do not want to confuse the "official" CSAH 9 that now runs along the Pipestone-Lincoln county line another mile to the south with the old CSAH 9 roadway.

I have attached a map showing alternative 1 and alternative 2 as we had discussed them at our initial meeting. I will refer to these two options as alternatives 1 and 2 in the following discussion.

Alternative 1 initially appeared to be the best route – shortest in distance and facilitated the removal of significant portions of existing power lines. I have denoted on the map what DNR understood to be power lines available for removal with alternative 1. DNR and TNC were both supportive of alternative one, but agreed that we would need to fully discuss this option with our staff to determine if it was both feasible and favorable.

Alternative 2 was also suggested as a reasonable option. This option would utilize existing corridors where transmission line disturbance was already present and still provide the opportunity to remove some existing lines from the WMA (again see the attached map). Although alternative two is longer, thus requiring more line, it was also viewed as less impacting

due to limited addition of any new alignment corridors. Overall, alternative 2 was viewed slightly less favorable at the initial meeting due to less existing power line removal.

After additional discussion with TNC staff and a series of internal DNR discussions, DNR determined that our preferred alternative was 2. Several DNR staff expressed significant concerns about the potential impacts of alternative 1. These impacts included, but were not limited to:

1) Fragmentation of one of the largest contiguous prairie areas in southwestern Minnesota,
2) Disturbance to soils along the township road that might facilitate the introduction of invasive species and cause shifts in community that might impact native prairie and rare species known to be present,
3) The introduction of elevated structures into an area intended to be used for eventual prairie chicken re-establishment, and
4) Addition of disturbance to an ecologically functioning prairie area with incredible aesthetics and natural appeal.

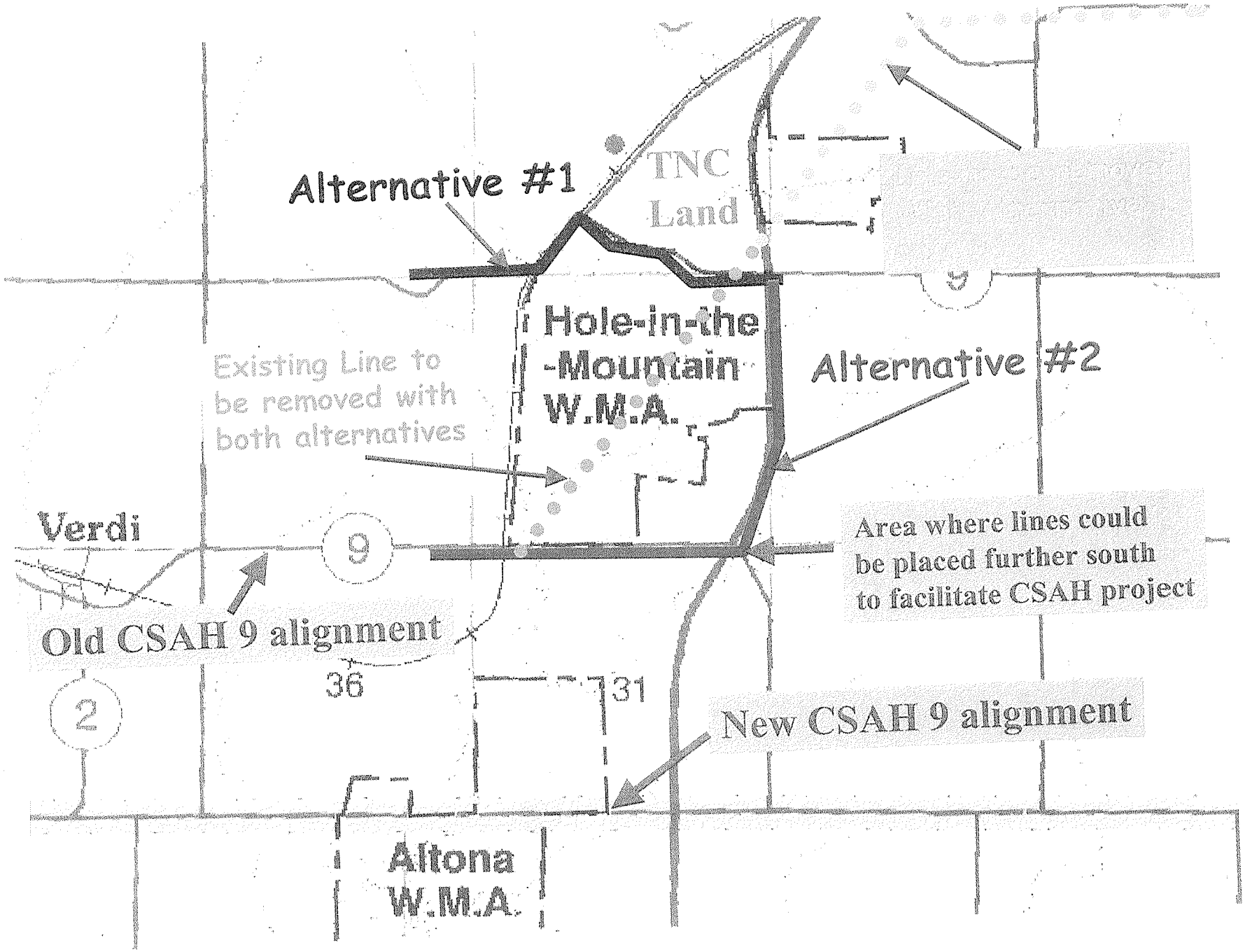
TNC staff shared all of these concerns as well. Regardless of the route, one section of power lines through the Hole-in-the-Mountain WMA will be removed. The benefit from removing the transmission lines to the northeast did not appear to outweigh the potential harms of running a new line as described in alternative 1. If alternative 1 is selected by your office, please contact the USFWS Federal Aid office, as they will likely desire to comment on the alignment due to federal aid issues. There have been significant concerns raised about transmission lines running through and adjacent to lands purchased with federal funding (e.g., Terrace WMA).

On a related issue, natural resource agencies have been in discussion with Lincoln County regarding a highway project that would move CSAH 9 from it's old alignment on the south side of Hole-in-the-Mountain WMA to a new alignment on the Pipestone-Lincoln County Line. DNR, along with numerous other agencies, are greatly concerned about this proposed project. The proposed new alignment for CSAH 9 on the Pipestone-Lincoln County border has significant resource value, including listed species, substantial wetlands, a calcareous fen, and federally funded lands on both sides of the road. Resource interests have asked the county to reconsider alternatives on the old CSAH 9 alignment. We understand that there are safety improvement needs, but we also believe that it is a feasible alternative.

One concern that the county staff have expressed regarding the use of the old CSAH 9 roadway (along the Hole-in-the-Mountain WMA) is the probable need to move the transmission lines on the south side of the road. Given the Xcel project we are addressing between Buffalo Ridge and White, it would appear that we have an opportunity here to resolve a couple of different issues. With Xcel's assistance and a route permit condition to work with the county to establish pole placement slightly further to the south, we can help eliminate the county's expense for moving the poles. This would help alleviate some of the financial issues associated with reconsideration of the old CSAH 9 upgrade – and ultimately make it easier for the county to withdraw its proposal to move CSAH 9 to the county line. Any assistance you could provide to save the county some money and help protect the resource would be appreciated.

Copies of this memo will be provided to the following:

Pete Bauman, TNC
Steve Colvin, DNR
Matt Langan, DNR
John Schladweiler, DNR
Bob Meyer, DNR
Cheryl Heide, DNR


Alternative #1
TNC
Land
Hole-in-the
-Mountain
W.M.A.
Existing Line to
be removed with
both alternatives
Alternative #2
Verdi
9
Area where lines could
be placed further south
to facilitate CSAH project
Old CSAH 9 alignment
36
31
2
New CSAH 9 alignment
Altona
W.M.A.

Larry Hartman

From: The Hohensteins [dhohens@itctel.com]
Sent: Tuesday, October 19, 2004 4:08 PM
To: Larry.Hartman@state.mn.us
Subject: Verdi Twp. second try

----- Original Message -----
From: The Hohensteins
To: larry.hartman@state.mn.us
Cc: Conrad Schardin ; The Hohensteins
Sent: Friday, October 15, 2004 7:25 AM

On behalf of the Verdi Township I am contacting you in reference to the project you are planning.

As you continue to make preparations to extend power lines thru SW MN north toward White, SD, it is our request that you consider placing the sub-station in the Verdi Township area.

Due to the high volume of wind tower carriage, Verdi Twp. roads are kept strong and well maintained. This would be of benefit to your linemen and those needing to service the energy equipment.

In addition, I believe you will find our township board members quite accessible and easy to work with.

Thank you in advance for considering our request. Please contact myself or Conrad if you have additional questions or comments.

Dave Hohenstein - Twp. Clerk
507-368-9275

Conrad Schardin - Twp. Chair
507-368-4876

B.3
October 19, 2004

September 23, 2004

Larry Hartman
Minn. EQB
658Cedar St. Room 300
St. Paul, MN 55155

Dear Larry:

I attended the 7:30 meeting last eveing at the Midwest Center for Wind Energy. I was amazed that you remembered me and the fact that our Drammen Township location is the highest elevation on the Buffalo Ridge.

My comments relate to what I think would be the best location for the new substation. My best and first choice would be Site #3, Section 31 in Drammen Township. I think Allan Rasmussen would be the easiest to deal with. Others on the proposed list seem to want "big bucks"!

Also, PPM has a large area under wind easement along Lincoln Co. Highway #12 and along and either side of the Minnesota-South Dakota border.

I would like to be on your mailing list concerning any notices or decisions made by the EQB.

Thank you.

Sincerely,

Theodore C. Schwing

Theodore (Ted) Schwing
1928 110th Ave.
Elkton, SD 57026
Ph. 507-368-9435

Interstate Telecommunications
Cooperative, Inc.
P.O. Box 920
312 4th Street West
Clear Lake, South Dakota 57226

Phone: 605.874.218
1.800.417.8667
Fax: 605.874.201
E-mail: info@itctel.com
www.itc-web.com

October 14, 2004

Chairman Larry B. Hartman
Minnesota Environmental Quality Board
658 Cedar Street Room 300
St. Paul, Minnesota 55155

RE: Xcel Permit Application

Dear Chairman Hartman:

Interstate Telecommunications Cooperative, Inc. (ITC), of Clear Lake, South Dakota, is concerned about the installation of a proposed 115kV transmission line and associated facilities by Xcel which will connect the Buffalo Ridge Substation in Lincoln County, Minnesota, to the White Substation in Brookings County, South Dakota. The proposed 115kV transmission line and associated facilities are to be installed and operated within an exchange of ITC.

ITC believes the proposed transmission line will interfere with the telecommunication services offered by ITC to its customers, because the proposed Xcel transmission line system is to be located along the same right-of-way as the telecommunications system presently in place for ITC and currently serving the cooperative's customers. Accordingly, the primary purpose of this letter is to advise the Environmental Quality Board that if the design of the wind plant collector system and related power system to be installed and operated by Xcel is not coordinated closely with the existing ITC telecommunications system, then the services provided by ITC to its customers will probably be disrupted by interference. Indeed, the customers of ITC located in and around Lake Benton, Minnesota, have reported either interference or noise disrupting their telephone services whenever there is wind collected by the current Xcel transmission line system. The current wind plant collection system was installed without any coordination by Xcel with ITC, and the interference or noise currently caused by the harvested wind remains a current problem for ITC customers in the area of Lake Benton, Minnesota.

The institute of electronic and electrical engineers has developed standards that directly address noise induced by power systems onto telecommunication systems. These standards measure, predict and provide potential remedies for these interference issues provided both the power company and telecommunication company apply these standards before the power systems are designed and installed.

Background:

The basic building block for telephony transmission is the voice channel. "Voice Channel" is defined as the transmission path for voice communication over coaxial cable, radio, wire, or over a fiber optic system. The primary concern in the case of "potential interference" is noise induced from collector power systems interconnected to wind turbines and routed along the same right-of-way as the copper conductors of the telecommunications system. ITC is concerned that service to its customers may be interrupted due to interference from the power system of Xcel that is to be located along the same right-of-way as ITC's telecommunications system. Please understand that the power system's conductors do not necessarily have to be located along the same right-of-way, but rather, need only be parallel and in close proximity to the telecommunication's conductors.

The institute of electrical and electronic engineers (IEEE) has prepared a standard that predicts, identifies and measures potential sources of interference from power systems onto telecommunication systems. This standard is called IEEE 776. Standard IEEE 776 is "the recommended practice for inductive coordination of electric supply and communication lines". IEEE 776 states that "[T]his recommended practice addresses the inductive environment that exists in the vicinity of electric power and wire-line telecommunications systems and the interfering effect that may be produced thereby; guidance is offered for the control or modification of the environment and the susceptibility of the affected systems in order to maintain an acceptable level of interference." The concept of an interface is developed to aid the user of this recommended practice in calculating induction between power and telecommunication lines. Also, engineers can predict the level of interference that may be produced before the transmission line is installed. Furthermore, this recommended practice permits either party to verify the induction at the interface by use of a probe wire after the transmission line has been installed.

Inductive interference is defined as an effect arising from the characteristics and inductive relations of electric supply and telecommunication systems. The interference is of such character and magnitude that it will prevent the telecommunication circuits from rendering service economically and satisfactorily if methods of inductive coordination were not applied. Inductive interference is produced by the simultaneous coexistence of the following three factors:

a) an inductive influence;

b) a coupling mechanism between two electrical systems or circuits of which one produces the influence; and

c) a susceptibility of the second system or circuit to interference.

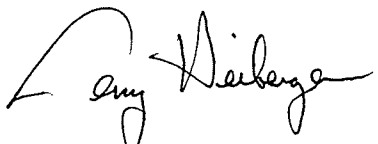
Inductive interference may generally occur at any time if the above conditions are met, but the majority of cases and the principal concern of this recommended practice involves interference in telecommunication systems as a result of their proximity to electric power systems. Accordingly, subsequent discussion is limited to that general case, although the principles and practices may apply to other cases as well.

Conclusion:

If the standard IEEE 776 is required in the permit issued by the Environmental Quality Board and Xcel closely coordinates its design of the wind facility with the telecommunications system of ITC, then inductive interference may be avoided. Standard IEEE 776 gives explicit guidance to avoid such interference. Furthermore, ITC would like to review and work with Xcel to avoid potential inductive interference by applying standard IEEE 776, plus other related IEEE standards.

Please feel free to contact me at 605-874-8308 if you have any comments or questions regarding the contents of this letter.

Sincerely,
Interstate Telecommunications Cooperative, Inc.



Jerry Heiberger
General Manager

C1: Route Segment Description

Segment Name	Description	Location	Length	Length Existing ROW	Length New ROW
Minnesota					
A	115 kV, SC underbuild	LC 108/ LC9	2.94	2.9	0.0
B	115 kV	US 75	0.15	0.2	0.0
C	115 kV/115 kV	US 75/LC 9	1.73	1.7	0.0
D	115 kV	LC 9/ 160th Ave.	2.28	2.3	0.0
E	115 kV	160th Ave., 140th St., 160th St.	8.03	8.0	0.0
J	115 kV	120th St./ CSAH 1	8.03	8.0	0.0
F	115 kV	CSAH 1, CSAH 13	3.42	3.4	0.0
		*Minnesota Route 1**	*18.6*	*18.6*	*0.0*
		*Minnesota Route 2**	*18.6*	*18.6*	*0.0*
South Dakota					
G	115 kV	212th St.	0.79		0.8
H	115 kV	487th Ave, 211th St	3.99		4.0
I	115 kV	484th Ave	4.65	4.7	0.0
			9.43	*4.7*	*4.7*
			27.98	*23.3*	*4.7*

**Minnesota Route#1 includes segment A, B, C, D, E, and F*

**Minnesota Route#2 includes segment A, B, C, D, J, and F*

C2: Route Segment Land Use

Segment Name	Length	Average Percentage by Land Use						
		Agricultural	Commercial/ Industrial	Grassland	Forested	Residential	Wetlands	Total
Minnesota								
A	2.9	100.0	0.0	0.0	0.0	0.0	0.0	100.0
B	0.2	100.0	0.0	0.0	0.0	0.0	0.0	100.0
C	1.7	38.0	0.0	62.0	0.0	0.0	0.0	100.0
D	2.3	66.0	0.0	22.0	0.0	7.0	5.0	100.0
E	8.0	94.0	0.0	0.0	0.0	5.0	1.0	100.0
J	8.0	86.0	0.0	7.0	0.0	7.0	0.0	100.0
F	3.4	100.0	0.0	0.0	0.0	0.0	0.0	100.0
South Dakota								
G	0.8	100.0	0.0	0.0	0.0	0.0	0.0	100.0
H	4.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
I	4.7	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Total SD	*9.4*	*100.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*100.0*
Total Project		***91.1***	***0.0***	***5.8***	***0.0***	***2.8***	***0.3***	***100.0***

C3: Route Segment Construction Impacts

Proposed Project Segment Name	Length	# Poles/ Segment	Impacts (acres)		
			Total Temporary Impacts	Temporary Pole Impacts	Permanent Impacts
Minnesota					
A	2.9	39	7.13	1.78	0.05
B	0.2	2	0.36	0.09	0.00
C	1.7	15	4.19	0.70	0.02
D	2.3	30	5.53	1.38	0.04
E	8.0	106	19.47	4.87	0.15
J	8.0	106	19.47	4.87	0.15
F	3.4	45	8.29	2.07	0.06
**Minnesota Route 1*	*18.6*	*237.2*	*45.0*	*10.9*	*0.3*
**Minnesota Route 2*	*18.6*	*237.2*	*45.0*	*10.9*	*0.3*
South Dakota					
G	0.8	10	1.92	0.48	0.01
H	4.0	53	9.67	2.42	0.07
I	4.7	61	11.27	2.82	0.08
South Dakota	*9.4*	*124*	*22.86*	*5.72*	*0.17*
Substation					
Buffalo Ridge			*0.70*	*0.00*	*0.70*
Yankee			*12.00*	*0.00*	*12.00*
Total Project	**28.0**	**369**	**80.53**	**16.61**	**13.20**

**Minnesota Route#1 includes segment A, B, C, D, E, and F*

**Minnesota Route#2 includes segment A, B, C, D, J, and F*

Assumes 400' spans for SC segments, 600' spans for DC segments
Total Temporary Impacts assumes 20' temporary construction access road
Temporary Pole Impacts are a subset of the total temporary impacts and assume a 2000 sq. ft. impact per pole
Permanent Impacts assume a 60 sq. ft. impact per pole

C4: Route Segment Environmental Impacts

Segment Name	Length	Residences w/in 300 ft.	Businesses /Farm Buildings	NWI Wetlands Crossed	NWI wetlands unable to Cross	PWI Crossed	PWI Crossings	SNA Crossed	Recreational Areas Crossed	Rare, T&E w/in 1/2 mile
Minnesota										
A	2.9	1	1	2	0	1	1	0	0	3
B	0.2	0	0	0	0	0	0	0	0	1
C	1.7	1	0	1	1	0	0	0	0	0
D	2.3	2	1	0	0	2	2	0	0	4
E	8.0	3	0	1	1	3	3	0	0	0
J	8.0	9	0	1	0	6	6	0	0	1
F	3.4	1	0	2	1	1	2	0	0	1
**Minnesota Route 1*	18.6	8.0	2.0	6.0	3.0	7.0	8.0	0.0	0.0	9.0
**Minnesota Route 2*	18.6	14.0	2.0	6.0	2.0	10.0	11.0	0.0	0.0	10.0
South Dakota										
G	0.8	0	0	0	0	N/A	N/A	N/A	0	N/A
H	4.0	2	0	0	0	N/A	N/A	N/A	0	N/A
I	4.7	3	0	2	0	N/A	N/A	N/A	0	N/A
Total SD	*9.4*	*5*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*N/A*
Total Project		***13***	***2***	***8***	***3***	***7***	***8***	***0***	***0***	***8***

**Minnesota Route#1 includes segment A, B, C, D, E, and F*

**Minnesota Route#2 includes segment A, B, C, D, J, and F*

C5: Route Segment ROW Calculations

Segment	Length (miles)	ROW Characterization	ROW Width (ft)	ROW Required (acres)
Minnesota				
A	2.9	LC 108/ LC9	42.5	15.1
B	0.2	US 75	42.5	0.8
C	1.7	US 75/LC 9	42.5	8.9
D	2.3	LC 9/ 160th Ave.	42.5	11.7
E	7.5	160th Ave., 140th St., 160th St.	42.5	38.8
E	0.5	140th St. (abandonned road)	75.0	4.5
J	8.03	120th St./ CSAH 1	42.5	41.4
F	3.4	CSAH 1, CSAH 13	42.5	17.6
**Minnesota Route 1*	*18.6*		*330.0*	*97.5*
**Minnesota Route 2*	*18.6*		*255.0*	*95.6*
South Dakota				
G	0.8	212th St.	42.5	4.1
H	4.0	487th Ave, 211th St	42.5	20.6
I	4.7	484th Ave	42.5	24.0
South Dakota Segments	*9.4*			*48.6*
Total Project	***28.0***			***146.1***

**Minnesota Route#1 includes segment A, B, C, D, E, and F*

**Minnesota Route#2 includes segment A, B, C, D, J, and F*